

US006329119B1

(12) United States Patent

Suetsugu et al.

(10) Patent No.:

US 6,329,119 B1

(45) Date of Patent:

Dec. 11, 2001

(1)

(54) NEGATIVE TYPE RESIST COMPOSITION

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(*) Notice:

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/559,646

(22) Filed: Apr. 28, 2000

(30) Foreign Application Priority Data

		(JP)	
(51)	Int. Cl. ⁷	G	03F 7/004

(58) Field of Search 430/270.1, 921

(56) References Cited

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

0827025 3/1998 (EP) . 09166870 * 6/1997 (JP) . 9166870 • 6/1997 (JP) . 10186660 7/1998 (JP) .

OTHER PUBLICATIONS

CA 127:154652.*

JP 09166870 A2, Jun. 1997 CA plusAbstract.*

* cited by examiner

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57) ABSTRACT

A negative type resist composition is provided, which provides excellent resolution, satisfactory profile and outstanding process stability: is suitable for exposure using deep ultra violet ray; and comprises alkali soluble resin, acid generator, crosslinking agent, and a basic compound represented by the following formula (I)

 $\begin{bmatrix} R^1 & & & \\ & & & \\ X & & & \end{bmatrix} A - \begin{bmatrix} & & \\ & & & \\ & & & \\ & & & \end{bmatrix} X$

wherein, A represents bivalent aliphatic hydrocarbon residue which may be optionally interrupted by imino group, sulfide group, or disulfide group, X represents nitrogen atom or C(NH₂), and R¹ and R² independently represent hydrogen or alkyl.

13 Claims, No Drawings